United Nations E/CN.3/2003/5

Economic and Social Council

Distr.: General
20 December 2002

Original: English

**Statistical Commission**
**Thirty-fourth session**
4-7 March 2003
Item 3 (b) of the provisional agenda*
**Demographic and social statistics: health statistics**

# Report of the Central Statistics Office of Botswana on health statistics

## Note by the Secretary-General

The Secretary-General has the honour to transmit to the Statistical Commission the report of the Central Statistics Office of Botswana on health statistics. The Commission may wish to comment on the issues raised in paragraph 34 of the report.

* E/CN.3/2003/1.

02-75953 (E) 230103

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# I. Introduction

1. The present paper describes the current health statistics system in Botswana. It outlines the various types and sources of health statistics, including methods used to produce and disseminate the data. The paper highlights problems encountered in the measurement of HIV/AIDS prevalence and the impact of such measures on various estimates of mortality.

2. The Health Statistics Unit falls under the Central Statistics Office of the Ministry of Finance and Development Planning but is seconded to the Ministry of Health, mainly because administrative documents used by the Health Ministry are the major source of data for the Unit. The Unit, which was established in 1974, has 22 officers, four of whom are from the Ministry of Health while the other 18 are Central Statistics Office staff. The Unit receives administrative support from the host ministry and technical support comes from the Central Statistics Office.

3. The Health Statistics Unit is the focal point for the Health Information System. It facilitates data collection, processing, analysis, interpretation, publication and dissemination of data to users. The Unit produces an annual report that provides statistical information required for planning and public use.

# II. Objectives and major components of the Health Statistics Unit

4. The major objective of the Health Statistics Unit is to have adequate, timely and reliable health statistics that reflect changing health needs of the population and patterns of health care. Such information is essential for planning, administration and evaluation. Specifically, the Unit is responsible for:

(a) Processing routine health information from health facilities;

(b) Processing annual personnel and health facilities data;

(c) Providing reports and health data;

(d) Establishing effective recording and reporting procedures to ensure uniform collection, analysis and interpretation of data;

(e) Liaising with other data producers in designing data collection instruments to avoid duplication;

(f) Advising medical records officers at the facilities to ensure the standardization of medical records methods and procedures.

# III. Types of information collected

5. The Unit collects both health status and health services information.

**Health status information**

6. This category includes information on health status of the population, such as births and deaths by cause, incidence or prevalence of disease and the characteristics of the individuals who suffer from such diseases. With that information, the health

of the population can be monitored by observing whether health status is improving or deteriorating over time. In addition to administrative records, data are collected through inter-census surveys conducted by the Central Statistics Office, including the Botswana AIDS Impact Survey (2001), the Multiple Indicator Survey (2001) and Family Health Surveys.

**Health service information**

7. This information pertains to quality and quantity of health services reported and utilized, as well as the status of various support services and programmes. The proportion of the population provided with essential health services can be determined by using this information. Several sections within the Unit deal with different areas, namely, health service, in-patients, out-patients and medical records. In addition, since all data capture and analysis are computerized, there is a centralized computer section for use by all sections.

## IV. Health Services Section

8. The Health Services Section receives data on health personnel and health facilities from the facilities within the whole country, which data are tabulated by region and health facility each year. Health personnel and facilities under the responsibility of private medical practitioners, missions and mines are also included in those tabulations and are published with the other data from the central and local government.

**Health personnel**

9. The Health Statistics Unit keeps and maintains a database for Ministry of Health personnel and health workers in clinics and hospitals, both for central and local government as well as private health facilities. The database contains information on the following:

(a) Facility number;

(b) Name;

(c) Surname;

(d) Sex;

(e) Nationality;

(f) Salary scale (grade);

(g) Designation (post title);

(h) Comments (remarks).

Data are published by locality, type of facility and area of specialization.

**Health facilities**

10. The Unit maintains a list of health facilities, which is updated annually, and produces a master health facility list. Facilities are grouped into health districts. Each facility is assigned a unique five-digit identification number. The first two digits designate the district, the third digit designates the type of facility (that is,

referral/district hospital, primary hospital, clinic, health post and private practitioner), while the last two digits are serial numbers within a district.

## V. Health status information

### In-patient Section

11. The In-patient Section receives in-patient summary forms for discharged patients from health facilities with beds (referral hospitals, district hospitals, primary hospitals and maternity clinics). The returns are sorted by facility and further sorted, and filed monthly. The diagnostic data reported on the forms are coded using the World Health Organization International Classification of Diseases, Injuries and Causes of Death (ICD), ninth revision. Forms are batched (general patients, 20 forms and deliveries, three forms per batch), numbered from one to the last batch. The facility number, month and batch number make editing easier.

12. Health facilities with beds throughout the country complete a nightly patient count for various categories of patients for each ward, including number of admissions, discharges, deaths, lodgers, newborns, occupancy rates, average length of stay and bed turnover for a specified period.

### Out-patient Section

13. This Section covers both curative and general out-patient services, as follows:

(a) Out-patient curative: registration of attendances by diagnosis and age group. This service is reported on a monthly basis;

(b) Out-patient general (including antenatal and post-natal care, family planning and growth monitoring for children under five);

(c) Notifiable diseases, including diseases of a potential epidemic nature that have been identified by the Ministry for close monitoring and are reported on a weekly basis;

(d) Non-institutional births and deaths;

(e) Prevention of blindness;

(f) Mental health.

14. The information is used to determine patient attendances at a health facility (workload) and morbidity. Data are published by district, age, sex, number of attendances, facility etc.

### Non-institutional births and deaths

15. These are births and deaths that occur in a non-institutional setting, for example at home. In order to capture statistics on such births and deaths, family welfare educators complete special forms whenever they are aware of such occurrences. Data analysis is currently done manually because the data set is very small. The data are included in the annual health statistics report and statistics brief.

**Prevention of blindness**

16. Diagnostics data on the forms are coded and classified according to ICD, ninth revision. Facilities are coded for identification using the master health facility list. Data are received from all hospitals and some clinics and health posts on a monthly basis. They also include data on trachoma screening from primary schools.

**Mental health**

17. This section deals with data on psychiatric in-patients and out-patients. Data are received from all health facilities with psychiatric units on a monthly basis. Diagnostic data on the forms are coded and classified according to ICD, tenth revision. Facilities are coded for identification using the master health facility list.

**HIV/AIDS data**

18. HIV/AIDS first appeared in Botswana in about 1985. The virus, through heterosexual transmission, is widespread in the general population. The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated that 25 per cent of the adult population in the age group 15 to 49 were HIV-seropositive in 2000, which suggests that the rate of transmission has been very rapid despite the programmes of action put in place over the years to prevent or slow down the spread of the disease. HIV/AIDS intervention strategies in a semi-literate society like Botswana have not been easy. As the statistics indicate, various measures that have been employed to curb the epidemic have not been very successful.

**HIV/AIDS sentinel surveillance system**

19. The Ministry of Health collects HIV/AIDS data through the above-mentioned system. Data are collected from pregnant women who attend antenatal clinics in certain sites of the country each year. Data are also collected from men and women who visit health facilities for sexually transmitted diseases services and from voluntary blood donors.

20. The objective of the surveillance system is to measure the trends and prevalence of HIV/AIDS in the sentinel population in order to track the development of the epidemic and to assess the effectiveness of intervention strategies. In evaluating the sentinel system, the national consultative committee raised concern about the non-probability sample selection methods and the rationale of inferring the sample results to the whole population. The committee, therefore, advised data users to take note of such limitations when analysing and using the data. Some of the limitations are:

(a) The sampling strategy adopted in the survey is designed mainly to track trends in HIV prevalence in the population served by the sites rather than to provide estimates of HIV prevalence in the entire population because sentinel sites are not randomly selected;

(b) Certain sites are not covered every year;

(c) The population served by the sentinel site may not necessarily reside in the area represented by the site;

(d) Pregnant women are not a representative sample of the adult population;

(e) Pregnant women are not a representative sample of all women aged 15 to 49 years;

(f) Pregnant women may have different age structure and fertility experiences compared to all women aged 15 to 49 years;

(g) Male/female prevalence ratios differ by age;

(h) HIV incidence cannot be calculated directly from the data.

21. The mission report on the *Human Development Report* and the national human development report for Botswana stated that both UNAIDS and the Population Division of the United Nations Secretariat used sentinel surveillance system data to calculate HIV/AIDS prevalence and mortality estimates of the Botswana population for the period 1995-2000.

22. The insufficiency and unreliability of the data, as evidenced by limitations, make it impossible for the Central Statistics Office to use the HIV/AIDS sentinel surveillance data to assess the impact of the epidemic on Botswana's demographic transition. However, in the absence of HIV/AIDS data from the national statistics office, organizations and agencies, such as UNAIDS, continue to use data from the sentinel surveillance system to estimate the prevalence and incidence of the disease and related problems in Botswana.

**Comparison of the three sources of mortality data**

23. The table summarizes estimates used to predict the impact of the AIDS epidemic in Botswana on the levels of mortality.

**Mortality estimates**

| | *1991 census* | *1998 demographic survey* | *United Nations, 1995-2000* | *2001 census (Provisional)* |
|---|---|---|---|---|
| Infant mortality rate | 48 | 51.0 | 58.0 | 56 |
| Child mortality rate | 16 | 17.0 | 48.0 | 74 |
| Life expectancy | 65.3 | 64.3 | 47.0 | 55.7 |

*Sources*: Population Division for 1998; and Central Statistics Office for the 1991 Population and Housing Census results and 1998 Demographic Survey results.

Direct methods aimed at providing estimates of the number of HIV infections using population-based surveys should be employed.

24. The results from these estimates will validate consistency with other approaches on demographic variables, and also for health-care planning. A good understanding of the impact of HIV/AIDS on demographic variables will ensure that policy makers are able to evaluate and develop policies that are more focused on the prevention of HIV/AIDS, thus assisting the Government in sharpening activities which are nationally responsive.

## VI. Medical Records Section

25. This Section ensures standard and sufficient medical record-keeping within all facilities. It is responsible for managing and improving the medical records reporting system, the clerical aspects of patient admissions and discharges, and proper and standard record-keeping systems.

**Design of forms**

26. Health departments or units design or redesign forms according to their needs. Drafts of such forms are submitted to the Health Information Systems Committee through the Medical Records Section for review and to check the following:

(a) Possible duplication of information with other forms;

(b) The number of personnel who are to use the form;

(c) Purpose or use of data collected;

(d) Location and retention of the form;

(e) Frequency, quantity and texture of forms to be ordered.

27. When all the above are satisfied, the form is given back to the department or unit, which edits the draft form and circulates it for wide review and comment by the eventual users of the form. The form must be pre-tested or shown to a small but representative sample of eventual users. The final draft is brought to the Health Information Committee through this section for approval and assigning an identification number.

## VII. Timeliness

28. The target date for the dissemination of the health statistics report is six months from the reference period. However, the most recent published report is from 1999.

**Publications**

29. The following are the publications on health statistics normally issued:

(a) Weekly notifiable diseases;

(b) Monthly midnight census;

(c) Annual health statistics report;

(d) Health statistics brief (provides highlights on health statistics while users are awaiting publication of main report);

(e) Master health facility: this is an annual report.

## VIII. Documentation of methodology

30. Documentation of methodology is included in the Health Statistics Unit operational manual. Compilation of health statistics follows WHO guidelines and the ICD manual.

31. To check on the validity of data, current reports are compared with previous reports. Appropriate modules from surveys data are also used for cross-checking.

## IX. Recent improvements to the health statistics system

32. Health facilities have been provided with computers to improve data reporting by Health net, but the system is currently not running due to lack of skills.

33. In addition, the Ministry of Health, with assistance from the Government of Norway, launched a five-year project for strengthening the health information system in July 1996. The main objective of the project is to develop an efficient health information system that would facilitate better planning and monitoring in the health-care system. The purpose of the project is to streamline the information system so that only the most relevant information is collected at different levels of the system. The Health Statistics Unit, being the main provider of health statistics, was given the responsibility of co-coordinating this project. However, the project is at the stage of streamlining the data-collection tools based on developed health indicators. The five-year plan elapses in March 2003. The achievements of the plan are:

(a) A report on health indicators was produced and adopted in January 2000;

(b) Using the approved health indicators, Health Statistics Unit data-collection tools were developed and tested in April 2001. The data-collection instruments (forms) were pilot-tested in some of the facilities. Results from the pilot tests are being used in the finalization of the data-collection instruments.

## X. Areas requiring assistance and international collaboration

34. The following problems need concerted efforts to be resolved:

**Short-term problems**

(a) There is a need for a two- or three-week mission to train Health Unit staff on the use of ICD-10. In addition, the Unit will need an adequate supply of copies of ICD manuals;

(b) Statistically and internationally accepted methods of estimating HIV/AIDS prevalence and incidence from sentinel surveillance system need to be developed for use by all countries;

(c) A change in the methods of estimating any development or demographic indicator must be fully discussed, agreed upon and approved for use by all nations. This refers to such indicators as healthy activity life expectancy, which do not seem to be used by many countries.

**Long-term problems**

**(d) There is a need to build capacity in health information management to cope with the ever-changing and increasing demands for more detailed analysis and interpretation of health information;**

**(e) The Central Statistics Office relies on outsourcing of data-processing activities for all its censuses and surveys. That will only be overcome by enhancing capacity in information technology personnel through assistance in training in the use of relevant software packages.**

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